

Contents

Notes of the Quarter	<i>page</i>	149
THE GALTON LECTURE 1967—CONTROL OF WORLD POPULATION—WHO WERE THE FIRST HOMINIDS?— LECTURES ON GENETICS IN NEWCASTLE UPON TYNE— OBITUARY: G. AIRD WHYTE		
Sociology, Biology and Population Control	<i>A. H. Halsey</i>	155
The Role of Genetic Factors in the Human Face, Jaws and Teeth: A Review	<i>Wilton Marion Krogman</i>	165
Notes and Memoranda		193
Reviews of Books		195
Other Notices		202
Periodicals		206
Urban and Rural Fertility: Some Facts		211
From the Press Cuttings		213
Correspondence		216

THE EUGENICS SOCIETY is not responsible for statements made or
opinions expressed by authors of articles, reviews and letters.

PUBLISHED Quarterly, Oliver and Boyd Ltd., Tweeddale Court, High
Street, Edinburgh.

PRICE: 17s. 6d. (U.S.A. \$3.00) per copy and 60s. (U.S.A. \$10.00) per
annum, post free. Issued free to Fellows and Members of *The Eugenics
Society*.

EDITORIAL OFFICES: THE EUGENICS SOCIETY
69 ECCLESTON SQUARE • LONDON • SW1 • 01.834.2091

Editor for the Society: Mrs. K. Hodson

PERIODICALS

THE AMERICAN JOURNAL OF HUMAN GENETICS

September 1966, Vol. 18, No. 5

Methemoglobin Reduction and the Inactive X Hypothesis by G. STAMATOYANNOPOULOS, TH. PAPAYANNOPOULOU, C. BAKOPOULOS and A. G. MOTULSKY

According to the Lyon hypothesis of X-inactivation, women who are heterozygous for G6PD deficiency are mosaics of cells, some having the normal enzyme and some with the defective enzyme. This mixture is reflected in each organ and has been shown to be present in skin and leiomyoma cells but there is no histo-chemical method yet for demonstrating the deficiency in individual red blood cells. For these cells an indirect method was to measure the rate of reduction of methemoglobin, since this depends on G6PD activity but then it was found that males hemizygous for the deficiency gene showed a "pseudomosaicism" due to decline of G6PD activity in ageing red cells. The present paper describes a neat experiment in which the red cells from heterozygous women were separated into two layers by centrifugation—a "younger" upper layer and an "older" lower layer. Tests then revealed that although the younger cells had lower methemoglobin levels than the older ones, mosaicism was found in both layers after methemoglobin elution—indicating two genetically different cell types.

It was also found that, for similar G6PD levels, males hemizygous for mild enzyme deficiency reduced methemoglobin normally while females heterozygous for the Mediterranean type of enzyme defect showed abnormal levels of methemoglobin. This less efficient methemoglobin reduction in heterozygotes compared with hemizygotes is best explained by assuming two red cell populations in the females, again indicating genetic mosaicism.

Properties of X-linked Alleles during Selection by HENRY N. KIRKMAN.

Equations for predicting the final gene frequency of two sex-linked alleles under selection have been reported by previous authors. The present one shows how the number of generations required to achieve any intermediate gene frequency may be estimated.

Gm(20), a new Hereditary Gamma Globulin Factor by MARTIN R. KLEMPERER, EUGENIA R. HOLBROOK and H. HUGH FUDENBERG.

Serum from an individual with rheumatoid arthritis was found to possess agglutinator activity against several gamma-globulin antigens, including a new one, Gm(20). This factor is dominantly inherited, the locus being closely linked to Gm(1).

C5 Types of Serum Cholinesterase in a Brazilian Population by G. C. ASHTON and N. E. SIMPSON.

Segregation of progeny from the four possible matings between C5 phenotypes in more than 1,000 families differed significantly from expectation, more C5-children being found than expected. Other unexpected findings concerned the age distribution of the children's phenotypes.

Two rare haptoglobin Phenotypes, 1-B and 2-B, containing a previously undescribed α -Polypeptide Chain by E. R. GIBLETT, I. UCHIDA and L. E. BROOKS.

A Chemical Difference between Human Transferrins B₂ and C by AN-CHUAN WANG, E. ELTON SUTTON and AUSTEN RIGGS.

Peptide mapping showed a single peptide difference in the trypsin digests of Tf C and Tf B₂: a glycine residue in Tf C is replaced by glutamic acid in Tf B₂.

Gm and Inv Studies of a Hokkaido Population: Evidence for a Gm² Allele in the Ainu by ARTHUR G. STEINBERG.

Data from a population of presumed mixed Ainu-Japanese ancestry are given.

PERIODICALS

Aneusomie de Recombinaison: Three Further Examples by JEAN DE GROUCHY, MARCEL AUSSANNAIRE, HENRI E. BRISSAUD and MAURICE LAMY.

Family studies including chromosome analyses are reported for three children with psychomotor retardation. In each case the authors suggest possible chromosome arrangements which could account for the family findings, illustrating their discussion rather nicely with string-models of differing hues.

Models for Clonal Evolutions: A Study of Chronic Myelogenous Leukaemia by JEAN DE GROUCHY, CRISTINA DE NAVA, JOSE-MARIA CANTU, GEORGES BILSKI-PASQUIER and JACQUES BOUSSER.

Eight examples of karyotype evolution were found in a study of forty cases of Ph¹ positive leukaemia. They are used to illustrate three possible models of clonal evolutions occurring in cell populations already known to carry the Ph¹ anomaly.

HELEN BLYTH

ANNALS OF HUMAN GENETICS

July 1966, Vol. 30, Part 1

Two Cases with a C-group Ring Autosome by L. ATKINS, S. S. PANT, G. W. HAZARD and E. M. OUELLETTE.

Clinical and cytological studies on two cases with a ring chromosome are reported.

The Effect of Partial Exclusion of Certain Matings and Restriction of their Average Family Size on the Genetic Composition of a Population by J. S. F. BARKER.

The eugenic consequences are examined when heterozygotes for a recessive lethal are persuaded (a) not to intermarry, (b) to limit the number of children when they do intermarry.

The Birth Weight and Survival of Ghanaian Twins by M. J. HOLLINGSWORTH and C. DUNCAN.

Data on birth weight, mortality and the age and parity of the mother in a sample of twins from Ghana are presented and discussed.

On Genetic Aspects of Angiokeratoma Corporis Diffusum by A. W. JOHNSTON, B. J. WARLAND and S. D. V. WELLER.

Two pedigrees of angiokeratoma, one of them very extensive, are reported. Both of them support a sex-linked mode of inheritance. It is suggested that the locus lies between the Xg locus and the locus for deuteranopia.

ABO Frequencies in Mongolism by H. O. GOODMAN and J. J. THOMAS.

No significant difference was found between the ABO frequencies of mongols in institutions and a comparable control population. The theoretical effects of trisomy on ABO frequencies are discussed.

Blood-group Gene Localization through a Study of Mongolism by D. A. PRICE EVANS, W. T. A. DONOHOE, R. M. BANNERMAN, J. F. MOHN and R. M. LAMBERT.

Phenotype frequencies were the same in mongols as in their sibs in all blood group systems except Kell in which there was an increase in Kell positives among mongols. It is suggested that the Kell locus may be on chromosome 21.

Familial Spastic Paraplegia with Amyotrophy of the Hands by J. R. SILVER.

Pedigrees of two families with this disease are described.

Inheritance of Marker Chromosomes from a Cytogenetic Survey of Congenital Heart Disease by E. C. MOORES, J. M. ANDERS and R. EMANUEL.

The inheritance of morphological chromosome variations in six families is described.

November 1966, Vol. 30, Part 2

A Theoretical Approach to the Study of Genetic Parameters of Histocompatibility in Man by A. SERRA and D. O'MATHUNA.

The theoretical consequences of a general model of histocompatibility are examined, and an attempt is made to estimate the number of loci and of alleles concerned in the rejection of kidney transplant in man.

The XY Bivalent in Human Male Meiosis by MAJ HULTEN, J. LINDSTEN, PEN-MING L. MING and M. FRACCARO.

The XY bivalent could easily be recognised in diakinesis and first metaphase in chromosome preparations from human testicular material. The X and Y chromosomes were separated in varying proportions of cases. Conclusive evidence of chiasma formation was not obtained.

Familial Down's Syndrome. A cytological and genealogical study of twenty-two families by MARGARETA MIKKELSEN.

The pedigrees and cytology of twenty-two families with Down's syndrome in more than one member were investigated. An inherited translocation was found in only four families.

Transmission of a 13-15/21 Translocation in Six Families by MARGARETA MIKKELSEN.

Genealogical, cytogenetical and blood-group data of six families with an inherited translocation between a chromosome of the 13-15 group and chromosome 21 are reported and discussed.

Human Meiosis: the occurrence of interlocked bivalents in a normal male by A. MCDERMOTT.

The mitotic and meiotic chromosomes from the testes of a sixty-five-year old man were investigated. A pair of interlocked bivalents was observed in nine out of the fifty-four diakinesis/early first metaphase cells examined.

Rare Phosphoglucomutase Phenotypes by D. A. HOPKINSON and HARRY HARRIS.

Eleven rare phosphoglucomutase phenotypes are reported, in addition to the three common phenotypes due to a pair of alleles. It is suggested that nine of the new phenotypes are due to heterozygous combinations of a rare allele at the same locus with one of the two common alleles, whereas two of the new phenotypes represent heterozygotes for alleles at a different locus.

On Some Models for Segregation Analysis by ERIC PERITZ.

The effect of compensation for foetal deaths on the analysis of segregation ratios is discussed.

Nail-patella Syndrome in an Indian Family: clinical and linkage data by J. C. SHARMA.

A pedigree of the nail-patella syndrome in a Hindu Bengali family is reported and discussed. Of eleven persons with the syndrome, two show malformation of the teeth. Close linkage with the ABO locus is confirmed.

M. G. BULMER

EUGENICS QUARTERLY

December 1966, Vol. 13, No. 4

A Multiple Variable Approach to the Assortative Mating Phenomenon by BRUCE L. WARREN.

The author asks whether assortative mating occurs because people seek spouses with characteristics similar to their own or whether people are sorted spatially by some characteristic and then marry someone who is at hand, and discusses both hypotheses.

Inbreeding in India by L. D. SANGHVI.

Marriage rules and customs in Indian caste society are extremely resistant to change and several of its peculiarities are described and formulae are given for calculating the decline in the frequency of deleterious genes under inbreeding over a period of generations.

PERIODICALS

Behaviour Measurement and Population Change by JOHN C. LOEHLIN.

These two subjects are amplified and emphasis given to "the very great diversity in the measurable aspects of human behaviour".

Relation of Fertility to Educational Attainment in a Kalamazoo Public School Population by CARL JAY BAIEMA.

This is a follow-up study of 957 native and white individuals born in 1916 or 1917 and who took the Terman Group Intelligence Test in the sixth Grade in the Kalamazoo Public School System.

Pakistan's New National Family Planning Experiment by WARREN C. ROBINSON.

A good survey of the family planning programme about to be launched, and described as "one of the largest and most ambitious schemes ever undertaken by any country". The outcome will provide valuable data for other countries.

Race: A Population Concept by WILLIAM S. LAUGHLIN.

The author of this article regards the vexed question of Race from the standpoint of "breeding groups" and observes that "variation in the human species is clustered rather than randomly distributed"—and proceeds to develop the theme with interest and marked ability.

Pilot Study: Population Differences in the Frequency of Spina Bifida Occulta by RICHARD H. POST.

This investigation was prompted by the previously ascertained fact that there are higher frequencies reported of abnormal nasal septa among long-civilized populations than among "hunters and gatherers". The question arose as to whether there might be other skeletal abnormalities associated with populations with relatively longer histories of civilization.

Brief Reports:

Key to the Secrets of Heredity. K. TOLKACHEV. Describes the exhibits at The Biology Pavilion of the USSR Exhibition of Economic Achievement.

Schizophrenia and Evolution. ROBERT E. KUTTNER and ALBERT B. LORINCZ. A discussion of possible survival advantages possessed by schizophrenics.

Notes on the Third International Congress of Human Genetics (The University of Chicago, September 1966).

Book Reviews:

Regional Model Life Tables and Stable Populations. Ansley J. Coale and Paul Demeny. Princeton University, Press New Jersey, 1966.

Described as a "monumental volume" making available extensive tables for analysis and estimation.

Genetics and Social Behaviour of the Dog. John Paul Scott and John L. Fuller. University of Chicago Press, 1965.

This book is the outcome of thirteen years research and is presented in four parts—the methodology of the project and the history of the social behaviour of the dog from the phylogenetic and the developmental points of view; the second part with breed differences in trainability and emotional reactivity; the third assesses the effects of heredity on behaviour, and the final section applies the "principles and concepts developed in the earlier chapters to the general problems of dog eugenics".

Birth Rates in Latin America: New Estimates of Historical Trends and Fluctuations. O. Andrew Collver. University of California, 1965.

Described as "Ambitious and much more reliable than those published so far".

THE EUGENICS REVIEW

World Population: Past Growth and Present Trends. A. M. Carr-Saunders. Frank Cass & Co. London, 1964.

A new impression of the original first published in 1936 and reviewed as a classic in the field of demography.

Demographic Profiles of an Urban Population. V. P. Pethe. Popular Prakashan, Bombay, 1965.

A study based on data obtained from 3,289 city-dwelling women.

Chromosomes, Giant Molecules and Evolution. Bruce Wallace. Newton & Co., New York, 1966.

Chromosomal and biochemical evidence of evolution for the general public. C. W. U.

POPULATION STUDIES

March 1967, Vol. 20, No. 3.

Law, Marriage and Illegitimacy in Nineteenth-Century Germany by JOHN KNODEL.

In certain German States in the nineteenth century, laws were passed limiting marriage to persons considered to be morally and financially capable of raising a family. These laws were subsequently repealed. The author studies the marriage and birth rates of the period in order to ascertain how effective the laws were. They appear to have restricted marriage rates, and also to have reduced legitimate birth rates; but much of this reduction was compensated for by a rise in illegitimate births.

Abortion in Amsterdam by P. E. TREFFERS

This is a study of abortions according to such factors as religion, social background, family circumstances, use of contraceptives and whether or not the abortion was induced.

Family Planning and Fecundity by ROBERT G. POTTER, JR. and JAMES M. SAKODA.

A statistical model of family-building is described which allows for the following items: length of reproductive period, chance of spontaneous abortion, chance of still-birth, length of gestation period, anovulation and fecundability. The model is a stochastic one and is evaluated on a computer. It is used to evaluate success in family planning, and the incidence of unsought births, according to the level of natural fecundability and according to the effectiveness of contraceptive practice. The authors emphasize that, even with average fecundity, unwanted births can be avoided only by very efficient contraceptive practice.

Local Variations of Fertility in Taiwan by ANDREW COLLVER, ALDEN SPEARE, J. R. and PAUL K. C. LIU.

This paper reports on an inquiry that was made in order to measure the correlations between declining fertility (attributable to birth control) and various socio-economic factors. The factor having the strongest association was population density. Others were the nearness of residence to a town and non-agricultural employment, but these are correlates of population density and do not contribute anything additional to density in the analysis. Another, more independent, factor associated with declining fertility is the height of the educational level.

The authors have formed the hypothesis that the desire for smaller families, having been first felt in the cities, has spread very rapidly to the countryside.

The Malthusian Theory of Pre-Civil War America by EDMOND COCKS.

An account of the attacks on Malthusian concepts made by the schools of Boston idealists and of Pennsylvania protectionists. In spite of the title of this paper, its main subject is the popularity of Malthus in post-Civil War America. The author seeks to explain this popularity in terms of the influence of Spencer, Mill and Darwin, and of the War itself.

This issue also contains obituary notices of Sir Alexander Carr-Saunders, including one reprinted from THE EUGENICS REVIEW, and some book reviews.

P. R. C.

FROM THE PRESS CUTTINGS

RESEARCH

£8,000 Gift to Fight Mongolism

RESEARCH WHICH MAY prevent the tragedy of mongol babies went a stage further in Britain yesterday with a gift of an £8,000 extension to the Kennedy-Galton Centre, at Harperbury Hospital, Hertfordshire.

Fingerprint, footprint, hair, skin, and blood tests on patients and parents offer a new hope that one day doctors will understand enough about mongolism to prevent it by treating parents before children are conceived.

The £8,000 gift came from the Wates Foundation. . . . A grant of \$50,000 by the Kennedy Foundation to Professor Lionel Penrose, director of the centre, has equipped it with electronic microscopes. Medical research staff, led by Dr. Joseph Berg, come from many parts of the world to study the pioneering work.

Investigation of the number of white cell chromosomes in the blood is part of the major research. Professor Penrose said yesterday: "Little is known about mongolism, but we have compiled a vast amount of information, and that is the only way to get a breakthrough to prevention or cure".

Babies from maternity hospitals and patients up to the age of 80 with some mongol characteristics are being closely examined at the centre. . . .

"It may take years to get through them all", Professor Penrose said. "We carry out such thorough tests that we examine only four patients a day from the hospital and two or three a week from outside. We make sure that the patients and parents are not rushed through in a way that would distress and upset them.

"Only a proportion of cases of mongolism are the result of genetic accidents, such as mutations and transmissible errors," Professor Penrose said. "Environment often plays a decisive part in causation. There are instances of poisoning and infections to be tracked down by careful history taking. . . ."

Mental retardation is a neglected branch of medicine. Apart from the scientific advantage of their work at the centre, he said there were other aims. Precise medical understanding of the patient's condition would allow them to realize their full capabilities, and parents and relatives could be advised on the risks of repetition of a similar disease in their family.

"I think this is the first time electron microscopy has been applied specifically to mental deficiency research," he said. "It allows us to magnify chromosomes and other structures by 50,000 diameters and search for abnormalities.

"We can also study divisions of human cells. By this means we hope to obtain information about errors of cell division which lead to the presence of wrong numbers of chromosomes and which cause serious defects in certain types of patients."

—*The Times*, 7th June 1967

Fight to Save Babies in Danger

MOSCOW

AN EXCITING NEW research project, designed to reduce the number of hereditary diseases, especially in babies, has just been started by medical researchers here.

They hope to be able to protect our bodies from natural agents in our surroundings that can cause damage to body cells, leading to illness in future generations. These include chemicals found in food, the atmosphere, and processes like rubber or asbestos production.

Already here at the modern new Institute of Genetics a hundred researchers and scientists have been able to discover protective drugs against the radiation from nuclear explosions.

Similar work is being done in Britain on a radiation antidote drug.

THE EUGENICS REVIEW

Academician Nikolai Dubinin, head of the centre, said his scientists have developed drugs which can restore 30 to 50 per cent of the damage caused to body cells by radiation.

He was asked if he and his team were now hoping to reduce the number of children born with defects.

He replied: "That is our task"

But he also gave a warning that a fourfold increase in the amount of background radiation in a generation because of continued atomic testing could lead to the number of such genetic defect cases in children to double.

"We must watch the radiation increase on earth very carefully," he said.

—*Evening News*, 6th June 1967

BIRTH CONTROL

French alter Law on Birth Control

PARIS

THE DECISION OF the National Assembly, before dispersing late last night, to adopt on a show of hands a new law on birth control involves a fundamental revolution in French social habits and thought.

The law reverses forty-seven years of rigid prohibition of all forms of contraception. It allows the manufacture, import, and sale of contraceptives, with strict controls.

The sale of contraceptives is allowed only through chemists, on a doctor's prescription limited both in time and in quantity. Intra-uterine appliances are to be issued only to registered physicians and the sale of contraceptives to people under twenty-one is authorized only on doctors' orders, and with the written consent of the parent or guardian. All publicity for contraceptives is forbidden.

Heavy penalties are provided for infringement of the new law—up to four years' imprisonment and a fine of from 4,000 francs (about £300) to 40,000 francs, for instance, for unauthorized sale to minors.

The Times, 3rd July 1967

Eire Doctors "are prescribing pill"

CORK

A BRITISH PROFESSOR of obstetrics and gynaecology told the Irish Medical Association conference in Cork today that he was saddened by the number of Irishwomen he had seen worn out, grossly anaemic, and old before their time because of incessant childbearing.

Professor J. C. McClure Browne, of the Institute of Obstetrics and Gynaecology, University of London, and Hammersmith Hospital, said he thought doctors in the Irish Republic were taking the law into their own hands and prescribing the "Pill" for family planning purposes. "I cannot believe that the vast sales of the pill in the Republic of Ireland can only be for medical purposes," he said.

Professor McClure Browne added that in the Republic of Ireland families of ten or twelve children seemed "commonplace". Obstetric dangers and complications increased sharply with the number of children a woman bore.

—*The Times*, 11th July 1967

Now the Birth Pill that lasts up to a Year

By MICHAEL JEFFRIES

NEW LONG-LIFE CONTRACEPTIVE pills, designed to stop a woman from having a baby for up to a year, have been developed by doctors.

The first trials on volunteers are to start "within six months", it is reported today from America.

But instead of swallowing them the "guinea-pig" wives will have them injected just under the skin.

FROM THE PRESS CUTTINGS

A built-in "time capsule" in the pill will release the contraceptive hormone, progesterone in small amounts.

Protection will last between three and twelve months. And there is a revolutionary difference. Unlike present oral contraceptives, this long-life pill will not affect a woman's monthly cycles.

If the new pill—or more correctly, pellet—proves successful and safe, it will be made available to British women.

Other American doctors are working on contraceptive capsules "the size of cigarette butts" which will eventually give protection for several years, says *Science Journal*. These would be implanted below the skin.

The new developments were announced to the American Association of Planned Parenthood Physicians in Atlanta recently.

Birth control experts were told that in the trials on women, "mini-dose" pills would be injected which contained only one hormone instead of the usual two.

But the way the new pill worked was still a mystery, he added.

Meanwhile Dr. Sheldon J. Segal is conducting animal studies to find the right human dosage.

The key to the solution of longer-acting one-shot contraceptives is a drug which releases small amounts at a time.

"You can get a lot of mileage from an active drug with a slow release rate," says Dr. Segal.

—*Evening News*, 27th June 1967

New Ideas to cut India Birthrate

SINCE MR. C. CHANDRASEKARAN, a demographer, became Minister for Health and Family Planning in the Indian Cabinet this year the air has been full of imaginative schemes to ease the unrelenting pace of India's population growth.

The Minister has lately mooted the idea of compulsory vasectomy for fathers of three children.

A more draconic suggestion has been made in Haryana where a private member's bill in the state assembly would impose six month's imprisonment or a fine of 1,000 rupees (about £48) on fathers begetting a fourth child, with the concession that two more children would be permitted on remarriage.

Mr. Chandrasekaran has urged that the marked reduction in the rate of population increase that India needs could be achieved by raising the legal age of marriage to twenty—it is at present fifteen for girls and eighteen for boys. But popular practice lags so far behind social legislation in India that these ideas are little more than words on the wind. . . . Somewhat more tangible in its effect might be the Central Government's move towards legalizing abortion. Recommendations of a committee set up by the centre are now under consideration by the states. The Minister hopes that a new abortion Act will be on the books this year.

He may there be overestimating the speed and perhaps even misjudging the direction of political opinion. A conservative backwash is becoming apparent in the state legislatures and there is no reason to expect that the central Parliament will be immune to it. . . .

The attempt to control India's population, now more than 500 million will have to rely on methods of contraception rather than on legislation and changes of social attitude. The great hopes aroused last year by the loop or interuterine contraceptive device have largely been dashed; there has been an unexpectedly high rejection rate among village women and the conservative elements of village society have gladly spread rumours of the loop's dangers—to husbands as well as to wives.

—*The Times*, 22nd June 1967

PRINTED IN GREAT BRITAIN BY
OLIVER AND BOYD LTD.
EDINBURGH

Notes of the Quarter	<i>page</i>	149
THE GALTON LECTURE 1967—CONTROL OF WORLD POPULATION—WHO WERE THE FIRST HOMINIDS?— LECTURES ON GENETICS IN NEWCASTLE UPON TYNE— OBITUARY: G. AIRD WHYTE		
Sociology, Biology and Population Control	<i>A. H. Halsey</i>	155
The Role of Genetic Factors in the Human Face, Jaws and Teeth: A Review	<i>Wilton Marion Krogman</i>	165
Notes and Memoranda		193
Reviews of Books		195
Other Notices		202
Periodicals		206
Urban and Rural Fertility: Some Facts		211
From the Press Cuttings		213
Correspondence		216